

3/23/00

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

STATEMENT OF BASIS

UNION PACIFIC RAILROAD

9th and Webster Streets

OMAHA, NEBRASKA

RCRA ID# NED000829754

INTRODUCTION

This Statement of Basis describes the corrective measures considered for certain Solid Waste Management Units (SWMUs) and Areas of Concern (AOCs) located at Union Pacific Railroad's (UPRR) facility located in Omaha, Nebraska. UPRR is located at 9th and Webster Streets in Omaha, Nebraska. The facility encompasses approximately 210 acres and is just west of the Missouri River.

This Statement of Basis covers 19 SWMUs and 14 AOCs located within (or partially within) the area designated as "Operable Unit No. 1" (OU1). This area has been identified as the soil above the ground water table in area of the facility which will be redeveloped by the City of Omaha into a convention center and arena. The U.S. Environmental Protection Agency (EPA) Region 7 is issuing this Statement of Basis as part of the public participation responsibilities under the Resource Conservation and Recovery Act (RCRA), 42 U.S.C. Sections 6901 to 6992k selecting a corrective measure for OU1. It identifies EPA's proposed corrective measure with the rationale for this preference.

The alternatives summarized here are highlights of the corrective action information that is described in greater detail in the (1) RFI Report for OU1 dated June 1999; and (2) the Corrective Measures Study (CMS) Operable Unit No. 1 (OU1) dated February 2000. EPA encourages you to review these documents for a more complete understanding of the corrective measure and the RCRA corrective action activities that have been conducted at UPRR.

This Statement of Basis explains EPA's proposed corrective measure and solicits public comments on all the corrective measures evaluated. The corrective measure described in this Statement of Basis is the proposed corrective measure for OU1. Changes to the proposed corrective measure may be made if public comments or additional data indicate a change will result in a more appropriate action. The EPA will make a final decision on selecting a corrective measure only after the public comment period ends and EPA has reviewed and responded to the comments received. EPA may modify the selected corrective measure or select another corrective measure based upon new information or comments.

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COMMUNITY ROLE IN SELECTION PROCESS

The EPA encourages public participation and relies on public input to ensure that community concerns are considered in selecting an effective corrective measure. Public involvement is important in the development and selection of corrective measures. EPA seeks public comment on all the alternatives described in this document. The public is also invited to provide comments on any corrective measures not included in the corrective measures study. An administrative record has been prepared that includes the RFI and CMS reports listed earlier and other information including this Statement of Basis. The administrative record is available for review during the public comment period from April 1, 2000, until May 5, 2000.

Representatives of EPA and UPRR will be available on May 2, 2000, from 3 p.m. until 6 p.m. in the Omaha School District's Teachers Administration Center Boardroom located at 3215 Cuming to answer questions about this Statement of Basis and the proposed corrective measures. A public hearing will be held starting at 7 p.m. at the same location.

All written comments should be addressed to:

U.S. Environmental Protection Agency Region 7
Attn: Ken Herstowski, ARTD/RCAP
901 N. 5th St.
Kansas City, KS 66101

(913) 551-7631
(913) 551-7765 (FAX)
herstowski.ken@epa.gov (email)

Written comments received by EPA and comments received during the hearing will be documented in a Response to Comments. EPA will make a Final Corrective Measures Decision after responding to all comments.

An information repository has been established at the W. Dale Clarke Branch of the Omaha Public Library at 215 S. 15th St., and is available during normal library hours. The administrative record titled "Administrative Record for Corrective Measures at OU1" is at the library and at the EPA Region 7 Information Resource Center, 901 N. 5th St., Kansas City, Kansas which is open from 9 a.m. to 3 p.m. weekdays (excluding holidays).

PROPOSED CORRECTIVE MEASURE

The proposed corrective measure for OU1 consists of the following actions:

- Removal of contaminated surface soil above the corrective action objectives (which are discussed later). Removal of subsurface soil in areas where excavations are necessary for the proposed redevelopment
- Placing excavated soil under the proposed road embankment for the Cuming Street connection to Abbott Drive
- Contingent removal of soil contaminated above the corrective action objectives and their disposal off-site at a commercial landfill if future development requires subsurface construction
- Institutional controls (zoning restrictions, for example) to prevent subsurface construction until contingent soil removal activities are completed

FACILITY BACKGROUND

UPRR is located at 9th and Webster Streets in Omaha, Nebraska. The facility encompasses approximately 210 acres and is just west of the Missouri River.

UPRR used the facility for approximately 100 years with its principal functions as a railroad fueling facility, repair shop, paint shop and car body repair shop for the locomotive and car fleet. UPRR used steam engines from the 1860s until the mid-1950s. Steam engines were fueled by burning wood, coal, fuel oil, and petroleum based fuels. The engines required little lubrication and had no electrical components. In the mid-1950s, diesel powered locomotives began to predominate. During that time, the entire facility was converted from the maintenance of steam engines to diesel engines. From the 1950s to 1988 the facility was a major overhaul and maintenance facility. In 1988, most of the operations, except the Print Shop and the Car Shop, moved to Little Rock, Arkansas. After the operations were moved, demolition of the facility began.

Maintenance and repair activities involved various hazardous substances principally paints, paint solvents, caustic cleaning chemicals and degreasing solvents. Wastes generated from maintenance and repair included paint wastes, spent solvents and asbestos containing materials. Some of those wastes have been disposed of on-site and have resulted in contamination of soil and ground water. For a more detailed discussion the historical operation of the facility and of solid waste management, please review Section 3 of the RFI Report.

In August 1980, UPRR submitted notification of hazardous waste activity to obtain interim status for the storage of hazardous wastes in containers. UPRR no longer stores hazardous wastes for longer than 90 days and is proceeding to close the area where containers were previously stored. EPA conducted a study of the UPRR facility to identify SWMUs and AOCs which may have released hazardous wastes or hazardous constituents to the environment. This study called a RCRA Facility Assessment (RFA) identified a total of 31 SWMUs and 18 AOCs. EPA

subsequently identified another SWMU for a total of 32 SWMUs. For more details on SWMUs and AOCs see the RFA Report dated June 16, 1998. EPA also conducted sampling and analysis to determine the presence of hazardous constituents. The results of EPA's sampling are in the "Final Sampling Strategy Report" dated September 25, 1998.

About 100 acres of the site has been proposed for acquisition by the City of Omaha to develop a public-use building project. For the purposes of this Statement of Basis, that building project will be assumed to be a convention center. The portion of the site proposed for redevelopment is being called "Operable Unit No. 1" and consists of both surface and subsurface soil above the normal high water table. Twenty SWMUs and fourteen AOCs are within or partially within OU1. "Operable Unit No. 2" (OU2) consists of both surface and subsurface soil above the normal high water table in the remainder of the site. "Operable Unit No. 3" (OU3) is the ground water beneath the site. Figure 1 shows the operable units and the location of SWMUs and AOCs.

SUMMARY OF OU1 RISKS

A baseline risk assessment was conducted as part of the RFI for OU1 to address the potential for adverse human health effects from exposure to chemicals, lead and asbestos in soil. The risks from exposure to ground water will be evaluated as part of the RFI for OU3 and are not included in the OU1 risk assessment. The following exposure scenarios were evaluated in the baseline risk assessment:

- Construction workers exposed to chemicals in the surface and subsurface soil from ingestion, dermal contact, and inhalation of contaminated soil and chemical vapors.
- On-site workers exposed to chemicals in the surface soil from ingestion, dermal contact, and inhalation of contaminated soil.
- Recreational users exposed to chemicals in the surface and subsurface soil from ingestion, dermal contact, and inhalation of contaminated soil.

Although many contaminants have been detected at OU1, only certain contaminants were evaluated in the risk assessment. These contaminants are called "Contaminants of Potential Concern" (COPCs). A contaminant was included in the risk assessment as a COPC if it was detected in more than five percent of samples collected in the RFI. But, if the contaminants were inorganic chemicals (arsenic for example), they were evaluated in the risk assessment only if present above naturally occurring levels. Naturally occurring levels are called "background" levels and are found in areas that have not been contaminated by activities of the facility.

The risks from exposure to lead were evaluated separately. Exposure to lead may cause adverse systemic (non-cancer) effects when blood lead levels exceed 10 micrograms per deciliter. EPA has developed models to predict when soil concentrations of lead will cause blood lead levels to exceed that level.

Contaminants are grouped by their potential for being carcinogens based upon health effects studies on animals or other human health information. The groupings are:

- Group A - Human Carcinogen: Sufficient evidence of carcinogenicity in humans.
- Group B - Probable Human Carcinogen:
 - Group B1 - limited evidence of carcinogenicity in humans.
 - Group B2 - sufficient evidence of carcinogenicity in animals, with inadequate evidence or lack of evidence in humans.
- Group C - Possible Human Carcinogen: Limited evidence of carcinogenicity in animals and inadequate evidence or lack of evidence in humans.
- Group D - Not Classifiable as to Human Carcinogenicity: Inadequate or no evidence.
- Group E - Evidence of Non-carcinogenicity for Humans: Adequate studies show no evidence of carcinogenicity.

Health risks from the COPCs are evaluated on either the potential to cause cancer or the toxicity. Estimates of cancer risk are developed only for those contaminants that are in Groups A, B or C above. This cancer risk is the probability of an individual developing cancer over a lifetime as a result of exposure to a carcinogenic contaminant. Cleanup is required if the estimated cancer risk is greater than 1 cancer case out of 10,000 people (referred to as 1×10^{-4} risk). If the cancer risk is between 1 in 10,000 and 1 in 1,000,000 (referred to as 1×10^{-6} risk), EPA will determine if cleanup is necessary. Cleanup is not necessary if the cancer risk is less than 1 in 1,000,000.

Estimates of health risks from contaminant toxicity are developed for those contaminants that are in Groups D and E. This estimate is called a "hazard index" and is the ratio of estimated daily intake of a contaminant to a reference dose which has no observed health effects. A hazard index of 1 (or less than 1) is considered to be safe.

An ecological risk assessment was not conducted for OU1. The facility is located in an urban area and the proposed redevelopment of the facility is for commercial use. Long term monitoring will be included as part of the corrective measure to determine if contaminants are being released to nearby wildlife habitat. If ongoing releases are found after implementation of the corrective measure, an ecological risk assessment will be required to determine what corrective measures may be necessary.

CORRECTIVE ACTION OBJECTIVES

The risk assessment did not evaluate the SWMUs and AOCs in OU1 on an individual basis. Instead, each contaminant of concern was evaluated throughout OU1. The risk assessment shows

that only certain contaminants at the SWMUs are a potential health risk. Using the information in the human health risk assessment, corrective action objectives are proposed for those contaminants. These corrective action objectives are levels of contaminants that are calculated to prevent potential health risks and allow for redevelopment of the facility. For carcinogenic contaminants, the corrective action objective level is based upon a 1 in 1,000,000 risk. For non-carcinogenic contaminants, the corrective action objective level is based upon a hazard quotient of 1.

EPA does not have a reference dose for lead so its corrective action objective for non-residential soil is based upon a model that predicts potential blood lead levels in the fetus of a pregnant on-site worker. The corrective action objective determined using EPA's model is 1,218 milligrams per kilogram of lead in soil. This corrective action objective is for all surface soil and subsurface soil where subsurface construction will occur.

The following table summarizes the corrective action objectives for surface and subsurface soil (where excavations are necessary for construction) in OU1:

Contaminant	Health Effect	Soil Concentration (milligrams per kilogram)
PCBs	Toxicity	14
Benzene	Cancer	24
Ethyl Benzene	Toxicity	6000
Toluene	Toxicity	2000
Xylenes	Toxicity	4500
Arsenic	Toxicity	440
Lead	Toxicity	1218

The following section provides information on current and potential health risks to human health by each of the contaminants:

Construction Workers: This scenario predicts the risk to persons involved in subsurface construction activities for a maximum of 12 hours per day for 120 days during one year. Subsurface soil are above the corrective action objectives. The other COPCs evaluated for soil have a combined estimated excess cancer risk of 5 in 10,000,000. The potential exposure to subsurface soil has a hazard quotient of 0.4. The risks to construction workers in this scenario are below EPA's target levels of 1 in 1,000,000 for cancer risks and below the target hazard quotient of 1 for chemical toxicity.

On-site Workers: This scenario predicts the long-term risks to persons involved in the day to day activities at the facility. Workers are assumed to be exposed to COPCs for 8 hours per day for 250 days a year over 25 years. These workers would not be exposed to subsurface soil. The risk assessment estimates that the excess cancer risk from exposure to the COPCs is 3 in 100,000. The hazard quotient is estimated to be 0.3. The risks to occupational workers in this scenario fall within EPA's target range for cancer risks (which is between 1 in 10,000 and 1 in 1,000,000) and below the target hazard quotient of 1 for chemical toxicity.

Recreational Users: This scenario predicts the long-term risks to persons who visit the facility for 4 hours per day for 32 days a year over 8 years. Recreational users would not be exposed to subsurface soil. The risk assessment estimates that the excess cancer risk from exposure to the COPCs is 2 in 1,000,000. The hazard quotient is estimated to be 0.04. The risks to recreational users in this scenario fall within EPA's target range for cancer risks (which is between 1 in 10,000 and 1 in 1,000,000) and below the target hazard quotient of 1 for chemical toxicity.

Lead Risks: EPA's Technical Review Workgroup for Lead has developed interim guidance for assessing lead risks and establishing corrective action objectives so that blood lead levels in children and pregnant workers will not exceed 10 micrograms per deciliter. To ensure the protection of on-site and construction workers, a corrective action objective of 1,218 milligrams per kilogram in subsurface soil was established using EPA's adult lead model. This corrective action objective will be protective of the fetuses of pregnant on-site and construction workers.

SCOPE OF CORRECTIVE ACTION

The scope of the corrective measures for OU1 are as follows:

- Select corrective measure objectives that are protective of public health and the environment based upon the City of Omaha's proposed redevelopment of OU1.
- Removal of subsurface soil where contaminant concentrations exceed corrective measure objectives where excavation will occur.
- Removal of surface soil where contaminant concentration exceed corrective measure objectives.
- Use of institutional controls including deed restrictions and local zoning requirements in order to ensure future use is consistent with risk assessment and corrective action objectives for protection of public health.

- Long-term monitoring to determine the effectiveness of the institutional controls and maintenance of the on-site soil repository.

SUMMARY OF ALTERNATIVES

The corrective measures included in the Corrective Measures Study (CMS) for the SWMUs are presented below.

No Action: The “no action” corrective measure is evaluated to establish a baseline for comparison to other corrective measures. A “no action” corrective measure does not include any remedial action, institutional controls or long-term monitoring. The CMS did not include this corrective measure.

Natural Attenuation: The natural attenuation corrective measure relies on physical, chemical, or biological processes that, under favorable conditions, act without human intervention to reduce the mass, toxicity, mobility, volume, or concentration of contaminants in soil or ground water. These processes include biodegradation, dispersion, dilution, sorption, volatilization, and chemical or biological stabilization, transformation, or destruction of contaminants. Natural attenuation usually occurs at most sites, but to a varying degree of effectiveness. It depends on physical, chemical, and biological characteristics of the soil or ground water. Long-term monitoring and institutional controls are required components of a natural attenuation corrective measure. The CMS did not include this corrective measure.

Institutional Controls: Institutional controls may be a required component of a corrective measure to ensure that future land use at a facility does not present greater risks to human health or the environment than the land use assumptions used in the risk assessment. All alternatives evaluated in the CMS for OU1 require the use of institutional controls to ensure future uses for the facility are consistent with the baseline risk assessment. These institutional controls will include use of a permanent indicator where subsurface contamination that has not been removed, deed restrictions, restrictive easements or covenants, local land use (zoning) restrictions. Contingent removal of contaminated subsurface soil will be required in before any construction will be allowed in those areas of OU1.

Long-Term Monitoring and Maintenance: Long-term monitoring and maintenance of on-site disposal areas will be a required component of the corrective measure. Long-term monitoring is used to determine if contaminants remaining at OU1 are being released. If they are being released, that is they are not being controlled by the corrective measure, a new corrective measure is taken to control the release of contaminants. As part of the corrective measure at OU1, ground water monitoring is not required. Ground water contamination will be evaluated on a site-wide basis as OU3. Long-term ground water monitoring or corrective measures to remediate ground water will be evaluated in the CMS for OU3.

Specific corrective measure alternatives were evaluated for OU1 and focused on eliminating exposure to contaminants in surface soil and removing contaminants from areas where subsurface construction would occur. The most important distinction between the alternatives is how the excavated soil would be managed.

Excavation and Off-site Disposal: Contaminated soil in areas that will have subsurface construction will be excavated to achieve the corrective action objectives and backfilled with clean soil. A minimum of 12 inches soil will be excavated where surface soil does not meet the corrective action objectives and backfilled with clean soil. A layer of colored woven material will be placed under the clean soil backfill as a permanent marker of remaining soil contamination above the corrective action objectives. The excavated soil and sediments will be tested to determine if they fail EPA's Toxicity Characteristic Leaching Procedure. Soil that fails this test are hazardous wastes and will be shipped off-site to a hazardous waste landfill. Excavated soil that are not hazardous wastes will be shipped to a solid waste landfill.

Soil Cover: Contaminated soil above the corrective action objectives will be covered with a minimum of 12 inches of clean soil. A layer of colored woven material will be placed under this cover as a permanent marker to alert persons that they are digging in an area of contaminated soil.

Excavation and On-site Disposal: A minimum of 12 inches soil will be excavated where surface soil does not meet the corrective action objectives and will be backfilled with clean soil. A layer of colored woven material will be placed under the clean soil backfill as a permanent marker of remaining soil contamination above the corrective action objectives. Contaminated soil in areas that will have subsurface construction will be excavated to achieve the corrective action objectives and backfilled with clean soil. The excavated soil will remain on-site as part of a new embankment for the connection of Cuming Street with Abbott Drive.

EVALUATION OF PROPOSED CORRECTIVE MEASURES AND ALTERNATIVES

This section evaluates the performance of the proposed corrective measure described above and alternative corrective measures against four "general standards" and five "selection factors." The general standards are overall protection, attainment of media cleanup standards, controlling the sources of releases, and compliance with waste management standards. These are threshold criteria that a corrective measure must meet. If the corrective measure cannot meet the general standards it is eliminated from further consideration. The selection factors are long-term reliability and effectiveness, reduction of toxicity, mobility or volume of wastes, short-term effectiveness, implementability, and cost. A corrective measure is chosen that can meet the general standards based upon the selection factors. The following describes the evaluation of each corrective measure's ability to meet the general standards:

Overall Protection: The “no action” and “natural attenuation” corrective measures were not evaluated and are eliminated from the remainder of this document. The soil cover alternative would eliminate, reduce or control risk by eliminating exposure to contaminated soil and institutional control to prevent digging in contaminated areas. Both excavation alternatives would eliminate, reduce, or control risk through removal and institutional control of the contaminated soil.

Attainment of Clean-up Standards: Corrective measure must meet the cleanup standards established as corrective action objectives. The soil cover will prevent exposure to contaminated surface soil but will not prevent exposure to construction workers. Both excavation alternatives will meet the corrective action objectives, and will prevent exposure to both surface and subsurface soil contamination.

Controlling the Sources of Releases: The soil cover will prevent exposure to contaminated surface soil but will not prevent exposure to construction workers. Both excavation alternatives will control releases by excavating contaminants and disposal in permanent disposal facilities.

Compliance with Waste Management Standards: Waste management standards are the federal and state regulations governing the management of solid and hazardous wastes. All the alternatives can be implemented in compliance with waste management standards.

Corrective measures that can meet the four general standards above are evaluated using the selection factors. EPA selects a corrective measure that provides the best balance in meeting the selection factors. Corrective measure cost is used as a “tie-breaker” when corrective measures are nearly equal in the selection factors. The following describes the evaluation of the corrective measures using the selection factors:

Long-Term Reliability and Effectiveness: Corrective measures should continue to work after they have been implemented. The soil cover is effective in preventing exposure to contaminated surface soil but will not prevent exposure to construction workers. Both excavation alternatives are effective in preventing exposure to contaminated soil. Both excavation alternatives will provide long-term reliability if the disposal sites remain under effective institutional controls.

Reduction of Toxicity, Mobility, or Volume of Wastes: The volume or toxicity of contaminated soil will not be reduced by any of the alternatives. All the alternatives will control the mobility of contaminated soil and prevent exposure to contaminated soil.

Short-Term Effectiveness: Corrective measures must be able to control exposure to contaminants during their implementation. With appropriate dust control during construction of the soil cover or during excavation, all the alternatives can be implemented safely.

Implementability: Some corrective measures require special equipment that may not be available or have special operating requirements. Standard construction equipment is all that is necessary to implement either the soil cover or the excavation alternative.

Cost: The following table summarizes the estimated costs of each corrective measure:

CORRECTIVE MEASURE	ESTIMATED COST
Soil Cover	\$952,767
Excavation and Off-Site Disposal	\$3,733,068
Excavation and On-Site Disposal	\$499,167

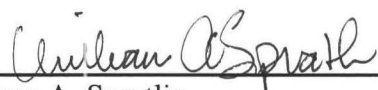
CONCLUSION

The proposed corrective measure, excavation and on-site disposal, meets all of the general standards. It provides the best balance of the selection factors: long-term reliability and effectiveness, reduction of toxicity, mobility, or volume of wastes, short term effectiveness, implementability and cost.

In developing the risk assessment and this statement of basis, it was assumed that OU1 would be redeveloped as proposed by the City of Omaha into a convention center and arena complex. The corrective measure was designed to ensure adequate protection of workers during construction and protection of the on-site workers and the patrons who will use the facility.

If the proposed redevelopment does not occur, new corrective measure objectives may need to be established. This may also require modification of the corrective measure or selection of a new corrective measure. Selection of new corrective action objectives, changes to the corrective measure, or selection of a new corrective measure will require a new public comment period to allow the public to review and comment on any changes from this Statement of Basis

Done this ²⁴23 day of March, 2000.



William A. Spratlin
Director,
Air, RCRA, and Toxics Division

